MEASUREMENT OF THE ACTIVE WIDTH IN SR-DOPED LANTHANUM MANGANATE SOFC CATHODES USING NANO-CT, IMPEDANCE SPECTROSCOPY AND BAYESIAN CALIBRATION

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Bayesian model-based analysis (BMA) is a method for producing quantitative models of complex physical systems through the comparison between models and experimental data. A model of a porous LSM cathode (symmetrical cell) was applied to impedance data and its parameters estimated via Bayesian calibration. X-ray computed tomography provided microstructural information for the model. The combination of model calibration and microstructural characterization enabled an estimate of the active thickness for a porous LSM electrode. The active width extended only a few nanometers from the surface, strongly suggesting that future models should explicitly resolve the space-charge region.